

I claim:

1. A hydrogen motor system, comprising:
  - a combustion chamber;
  - 5 a hydrogen source for introducing hydrogen into the combustion chamber;
  - an oxygen source for introducing oxygen into the combustion chamber;
  - a water source for introducing water into the combustion chamber;
  - 10 an ignition system for igniting a mixture of hydrogen and oxygen in the combustion chamber;
  - a source of working fluid, where the source of working fluid is operatively connected to the combustion chamber such that expanding fluid within the combustion chamber acts on the
  - 15 working fluid to pressurize the working fluid;
  - an accumulator operatively connected to the combustion chamber such that pressurized fluid within the combustion chamber flows into the accumulator;
  - a propulsion system for converting fluid energy into mechanical
  - 20 movement; and
  - a control valve operatively connected to control a flow of pressurized working fluid from the accumulator to the propulsion system.
- 25 2. A system as recited in claim 1, further comprising an inlet check valve operatively configured to allow fluid to flow only from the source of working fluid to the combustion chamber.
- 30 3. A system as recited in claim 1, further comprising an outlet check valve operatively configured to allow fluid to flow only from the combustion chamber to the accumulator.

4. A system as recited in claim 2, further comprising an outlet check valve operatively configured to allow fluid to flow only from the combustion chamber to the accumulator.

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5. A system as recited in claim 1, in which the combustion chamber further comprises a piston assembly, where combustion of the hydrogen within the combustion chamber acts on the working fluid through the piston assembly.

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6. A system as recited in claim 5, in which the working fluid is hydraulic fluid.

7. A system as recited in claim 1, in which the propulsion system converts energy of the pressurized fluid into linear movement.

8. A system as recited in claim 7, in which the propulsion system further comprises a power transmission that converts reciprocal movement of the piston member into rotational movement of a shaft.

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9. A system as recited in claim 1, in which the propulsion system comprises a shaft that is operatively connected to a vehicle transmission.

10. A system as recited in claim 1, in which the propulsion system comprises a shaft that is operatively connected to an electrical generator.

11. A system as recited in claim 5, in which the piston assembly defines first, second, and third chambers within the combustion chamber, where the hydrogen is ignited in the first chamber, working fluid is

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pressurized in the second chamber, and working fluid is circulated from the third chamber through a filter to clean the working fluid in the third chamber.

5           12.    A system as recited in claim 1, in which the control valve comprises a flow controller configured to control the flow of fluid from the accumulator to the propulsion system.

10           13.    A system as recited in claim 12, in which the control valve further comprises a check valve arranged in parallel to the flow controller to allow fluid flow from the combustion chamber to the accumulator when a pressure of the working fluid within the combustion chamber exceeds a pressure of the working fluid within the accumulator.

15           14.    A system as recited in claim 1, further comprising a supply valve that controls the flow of fluid from the source of hydrogen to the combustion chamber.

20           15.    A system as recited in claim 1, further comprising a supply valve that controls the flow of fluid from the source of oxygen to the combustion chamber.

25           16.    A system as recited in claim 1, further comprising a supply valve that controls the flow of fluid from the source of water to the combustion chamber.

30           17.    A system as recited in claim 1, further comprising first, second, and third supply valves that control the flow of fluid from the source of hydrogen, source of oxygen, and source of water, respectively, to the combustion chamber.

18. A system as recited in claim 9, in which the propulsion system further comprises a flywheel operatively connected to the shaft such that rotation of the shaft causes rotation of the flywheel.

5 19. A system as recited in claim 10, in which the propulsion system further comprises a flywheel operatively connected to the shaft such that rotation of the shaft causes rotation of the flywheel.